

Claims

1. A remote-controllable time-based power control apparatus, comprising:

a remote controller (1) provided with keys to set an operating time of an electronic appliance to transmit setting information for the operating time to control means (3) connected to a plug (2) in a wireless manner, the remote controller (1) comprising a display unit (12) and a signal tone generating unit (13) for visually and aurally informing a user of power control information transmitted from the control means (3);

the plug (2) for supplying a power to the electronic appliance; and

the control means (3) comprising a wireless transmitting unit (31) and a wireless receiving unit (32) for communicating wireless data with the remote controller (1), a memory (35) for storing therein registered code information of the remote controller (1) and preset operating time information transmitted from the remote controller (1), a clock generating unit (36) for generating clock signals at regular periods, a direct current (DC) power unit (38) for converting an alternating current (AC) power input to the plug (2) into a Direct Current (DC) power and supplying the DC power as an internal drive power, a second MPU (42) for performing real-time counting using the clock signals generated by the clock generating unit (36) and outputting a control signal to shut off the power when a counted value is identical with the preset operating time transmitted from the remote controller (1) and stored in the memory (35), a power control unit (40) for controlling a transistor (Q1) to be turned on/off in response to the control signal output from the second MPU (42), and the transistor (Q1) turned on/off in response to a control signal output from the power control unit (40) to turn off a relay switch (41) connected to a power line at one end of the plug (2), the control means (3) controlling the electronic appliance to be automatically turned off after the electronic appliance is operated for the preset operating time transmitted from the remote controller (1).

2. The remote-controllable time-based power control apparatus according to claim 1, wherein:

the control means (3) further comprises a load detecting unit (39) on an output side of the relay switch (41) to detect a load due to the operation of the electronic appliance; and

the second MPU (42) recognizes that the electronic appliance is operated only when the load detecting unit (39) detects a load, and counts an actual operating time using the clock signals generated by the clock generating unit (36).

3. The remote-controllable time-based power control apparatus according to claim 1, wherein:

the control means (3) further comprises a low voltage detecting unit (37) for detecting an abnormal fluctuation in the power input to the plug (2) and providing the detected results to the second MPU (42); and

the second MPU (42) is reset after storing a value, obtained by counting an actual operating time until a voltage fluctuation signal is input from the low voltage detecting unit (37), in the memory (36), and then continuously counts the remaining operating time on the basis of the operating time counting value stored in the memory (35) after reset.

4. The remote-controllable time-based power control apparatus according to claim 1, wherein the control means (3) transmits the remaining operating time of the power plug (2) and ON/OFF status information of the power to the remote controller (1) in a wireless manner, thus allowing the user to monitor the information through the display unit (12) of the remote controller (1).

5. The remote-controllable time-based power control apparatus according to claim 1, wherein the control means (3) transmits a predetermined alarm signal to the remote controller (1) when the remaining operating time is

less than a predetermined time, thus outputting an alarm through the signal tone generating unit (13) of the remote controller (1).